



The Pay Divide

Men make more money than women. Some new economic research helps explain why

BY DOUG CAMPBELL

It's a fact of the modern labor market that women make less money than men. Considerably less, actually. Women who work full-time now earn about 80 percent of what their male counterparts make, according to the Bureau of Labor Statistics. And, according to at least one study, the gender wage gap increases by about 20 percentage points between ages 20 and 40. Though the gap has narrowed over time, this divide looks unlikely to close completely anytime soon.

An array of factors is at play here. While professional men tend to hold jobs as engineers or mathematicians, professional women tend to be employed as teachers and librarians — occupations which pay less. (Although, women increasingly are working in fields that used to be the exclusive province of men). Additionally, women as a group work fewer hours than men, even those classified as employed full-time. Women may also be subject to labor market discrimination (though a lot of economists would tell you that

systematic discrimination is difficult to imagine as sustainable in a competitive environment), getting paid less than a man for identical work.

Then there is the simple but important observation that women can become mothers, often staying at home for months or years raising their children before returning to the work force, if ever. As a result, their stock of on-the-job experience slips behind that of men's and so, too, does their pay. Mothers earn about 89 percent of what women without children earn — a difference that by itself accounts for almost half the wage differential between men and women.

All of these factors are important to consider. But what if every one of them — from occupational choices to experience levels — were actually rooted in a single, underlying cause? It may be that no such explanation exists. But if it did, it could prove useful to policymakers grappling with how, or even whether, to address the wage gap.

Recently, a team of economists has made some headway on this question.

They investigated the extent to which men and women face different incentives to invest in their future earning power. Their work has its roots in the economic concept of human capital, or, loosely, the skills that people acquire which help them in the workplace.

Economists have long debated how much the gender wage gap can be explained in terms of human capital. Skeptics have noted that human capital theory's predictions are at times inconsistent with real-world data. But now, Richmond Fed economist Diego Restuccia and his co-authors, Andrés Erosa and Luisa Fuster of the University of Toronto, are trying to quantify the role that incentives to accumulate human capital play in the gender wage gap.

"There's a set of people who really believe that wage differences between men and women can in large part be explained by discrimination in the labor market," Restuccia says in an interview. "For people who believe in human capital, the burden has been to show that this channel is

indeed quantitatively important and consistent with what we observe in the real world.” That, in a nutshell, is what Restuccia and his colleagues have tried to accomplish.

A Theory is Born

The theory of human capital was largely developed by economists Gary Becker and Jacob Mincer at Columbia University in the 1950s and 1960s. Becker’s 1964 book *Human Capital* popularized the notion that investments in education, training, and health care were as important to the economy as other means of production. Those who accumulate human capital, be they businesses or individuals, can expect payoffs much as they would from investments in tangible assets. The theory says that there is a proportional relationship between the amount of effort people put into obtaining experience and training and the time they expect to work over their lifetime.

Mincer and Solomon Polachek applied human capital theory to the gender gap in their seminal 1974 paper, “Family Investments in Human Capital: Earnings of Women.” They were among the first economists to get hold of a data set with detailed work histories among men and women. Mincer and Polachek concluded that because women expect child-related career interruptions, their incentives for investing in human capital are weaker compared with men.

It works this way: At age 22, a woman might see her career arc as beginning with an entry job, moving up the corporate ladder to a managerial position, only to leave the workplace for several years after giving birth to her first child. A man, by contrast, might see the same arc, only he won’t leave his job after becoming a father. On balance, which of these — the man or woman — is going to invest more on-the-job effort and time? You can call this discrimination, insofar as women are presumed to be the ones who stay home with the children. But for women who

expect to be the ones staying home, it is also an economically rational decision.

More than 30 years later, Polachek, now at the State University of New York at Binghamton, recalls some hostile initial reaction, with many critics arguing that the study overlooked a role for labor market discrimination. But Polachek says it’s not so much market discrimination in action as “societal,” or home-life discrimination. “Our major contribution was probably to understand that the division of labor in the home is a fairly important concept,” Polachek says. “It’s a phenomenon which explains the differential patterns of married male and married female investments in future earnings power in the labor market, which in turn plays a very important role in explaining the male-female wage difference.”

The theory of human capital has been widely cited in promoting many policies aimed at easing the gender wage gap. Parental leave proposals, in particular, have been grounded in the notion that they may be powerful solutions for this problem. Columbia University economist Jane Waldfogel, in an influential 1998 paper, noted that the chief reason why women’s pay trails that of men’s is that women with children drag down all women’s earnings — the so-called “family gap.” She put it this way: “Maternity leave coverage, by raising women’s retention over the period of childbirth, raises women’s wages by increasing their levels of work experience and job tenure and allowing them to maintain good job matches.” Waldfogel cited data from Britain and Japan as evidence that maternity leave can raise women’s pay. “Thus,” she says, “maternity leave, along with other family policies, may be an effective remedy for the family gap in pay.”

Over the years, interest in human capital as an explanation for the gender wage gap has ebbed and surged. Skeptics pointed to the 1980s as evidence that human capital theory wasn’t relevant. During that

time, female labor force participation rose but wages for women didn’t see proportional gains. (Since then, the gap has resumed its narrowing.) Meanwhile, women have overtaken men in numbers at our nation’s colleges, and still they trail in pay. To a casual observer of human capital theory, this doesn’t always seem to add up.

A New Approach

Restuccia’s main area of research has been economic growth. He has used human capital theory to study differing rates of productivity between nations and differing earnings among generations. Looking at the gender wage gap through the lens of human capital, then, was somewhat of a natural step.

Restuccia and his co-authors decided that they wanted to test Waldfogel’s idea that parental leave policies would help close the gender wage gap. To do this, they set up a mathematical model in which human capital is the main determinant of how much people get paid. Human capital evolves with experience (“general” human capital) and tenure on the job (“specific” human capital).

People base their decisions on whether to work on how much they think they’ll earn in the future. And since this is a dynamic model, people understand that leaving their jobs even temporarily — as when women take leave for childbirth and rearing — can have an impact on the human capital they accrue. To this framework the economists added the feature of mandatory parental leave policies, meaning workers would be able to go back to their previous jobs after tending to matters at home.

Going in, the economists expected their results would bear out a relationship between human capital and the pay gap. But when they ran the calculations, they were surprised. Their results suggested that specific human capital wasn’t sufficient to account for the wage gap and, by extension, that generous mandatory leave policies in this framework would

have no impact on closing the wage gap.

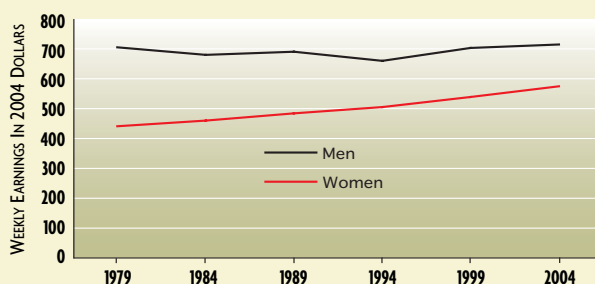
Instead, it turned out that women in the model with good-paying jobs generally would decide not to leave the work force in the first place — they “self-selected” to remain on the job. The economists reasoned that this happened because highly trained women didn’t want to give up the specific experience they had built up and because they had more to lose in future earning power. “Women who do have children and then separate from their jobs typically are selected from the group that doesn’t have a lot of human capital,” Restuccia says in an interview. “So this selection effect mitigated the portion of wage losses that was due to specific human capital.”

This finding seriously threw into question the assumption that specific human capital is important enough to account for the difference in wages between men and women. Not satisfied, Restuccia and his co-authors decided to go back to the drawing board. They needed a deeper understanding of the wage gap. Where the original Mincer and Polachek work tested only the overall force and direction of the human capital channel, Restuccia and his colleagues sought a quantitative answer to how much human capital incentives explain the gender wage gap.

This time, they built their model so that human capital was not necessarily job-specific but simply built up over time in the labor force — skills that could be used in any number of occupations. To Restuccia’s knowledge, this was one of the first attempts to apply “quantitative theory” modeling techniques favored by macroeconomists to the question of human capital’s role in the gender wage gap. (Most analyses of the gender wage gap have relied on regression models that use empirical data.)

A Narrowing Gap

Since 1979, women have narrowed the pay gap with men by about 20 percentage points.



SOURCE: U.S. Bureau of Labor Statistics

The emphasis on future (or lifetime) labor supply is the key difference between the human capital analysis done by Restuccia and his co-authors and the standard way scholars have studied the wage gap. In the standard approach, wage differences can’t be explained by observable factors. Men and women may have, for example, nearly identical resumes and years of experience — so why do men make more money than women?

Even when comparing among specific occupations and years of experience, women are paid less than men. The standard approach suggests that this “unexplained” difference must be attributable to labor market discrimination. Instead, the human capital approach takes into account people’s incentives with regards to the future.

The authors took pains to calibrate their model to real-world conditions: The percentages of women with children, when they have children, and how many were the same in the model as empirical data show them to be. Children are the “shocks” in the model, the only thing that differentiates male and female expectations about the future. The resulting prices and wages were reflective of all the conditions in this model’s environment. They also used panel data (as opposed to the standard BLS data which is a cross-section of people’s wages over time), in which people were followed over their careers and

in which the gap between male and female pay was shown to grow from 20 percentage points to 40 percentage points between the ages of 20 and 40.

In the economists’ resulting model, almost all of the gap’s increase over the life cycle can be explained as a function of differing incentives for accumulating human capital. These incentives are so robust that even women who never have children are affected — merely the

possibility of their withdrawing from the labor force plays a role in how much work they decide to do.

Though not specifically tested, in principle the results may even explain wage differences between men and women in the same jobs. A female attorney may have fewer incentives to, say, work 80 hours a week in private practice trying to make partner, instead choosing a more 9-to-5 job that requires legal skills. “It’s a decision about how much effort to put into human capital accumulation,” Restuccia says. “Children are going to affect the lifetime labor supply of women. Our model can go a long way in accounting for the differences in wages between men and women.”

Maternity Leave Revisited

Given these findings, it’s particularly interesting to note that one of the possible policy prescriptions that Restuccia thinks worth considering is some sort of leave program. Though his first paper skewered the notion, the second paper allows that experience doesn’t have to be job-specific. In this environment, leave policies may increase women’s attachment to the labor force, which in turn would give them greater incentives to accumulate human capital.

Think of it this way: What ultimately matters most for the wage gap is that over their careers women supply much less time to the labor market than men. As a result, women

make lesser investments in human capital than men and, by extension, get paid less. Parental leave policies might help address this issue, but they still don't get to the heart of the problem of how to increase female labor force participation. Any policy aimed at closing the gender wage gap ought to allow women to supply as much time to the labor market as men.

"It's clear that leave policies should be studied in this framework," Restuccia says. "If parental leave policies do affect employment and hours of work, they will have an effect on wages."

Given a choice, Restuccia (and Polachek agrees) favors greater availability of child care services over leave policies, in part because the latter has the potential of penalizing the employer who has to keep a job open. Moreover, child care services (or more flexible jobs) directly target the difference between men and women, that of women not being able to see themselves dedicated to work as men do.

The wage gap endures, but it has shrunk significantly. In 1979, the overall difference was 38 percentage points; today it is 20, according to government figures. The notion that labor market discrimination continues to play a significant role has been hard to shake, even as, theoretically at least, it's hard to imagine a truly competitive world where that would happen. For example: If there really was a pool of qualified workers who could be paid 20 percent less

than another pool of equally qualified workers, then firms that hired the less costly workers would make a killing in the marketplace. Eventually, in a competitive world, wages would have to be equalized.

At the same time, by no means does Restuccia think his research rules out a role for market discrimination. It could be that market discrimination is just one of many "shocks" that women encounter in their work lives and that is propagated by employment and human capital accumulation decisions. It may be something that women factor in when deciding how much to work and to invest in human capital accumulation (though the economists' model does not test this idea). But to Restuccia, the findings mostly suggest that corporate discrimination is not as important as once thought. As with Polachek, Restuccia sees a greater role for home-based discrimination than market-based. Societal norms pull more women into the home than market norms.

A more straightforward explanation for why the wage gap persists but has been shrinking is that women are working more — from labor force participation of 50.9 percent in 1979 to 59 percent in 2004 (though gains have flattened in recent years).

Meanwhile, male labor force participation is sliding, from 77.8 percent in 1979 to 73.3 percent today. These parallel trends are perfectly in keeping with human capital theory. The more one's lifetime labor force

participation, the greater the incentives and the benefits (in the form of higher wages) to investment in training and experience.

Labor-saving devices in the home — ranging from vacuum cleaners to microwave ovens — are thought to have contributed to the surge of women into the workplace. So, too, has the general shift into a more service-oriented economy. Also, women are having fewer children, meaning they have different expectations about future job separations than their mothers. At the same time, women are taking part-time jobs, the likes of which didn't exist in any significant numbers in 1950. A big chunk of the recent labor force gains of women are attributable to part-time jobs.

It is on that front that economists Restuccia, Erosa, and Fuster want to proceed. The extent to which availability of flexible and part-time jobs, as well as child care services, can close the gender wage gap is next up on their to-study list. "Maybe policies should be implemented to allow women to balance the time they have to put into home with their kids but still be in the labor market," Restuccia says. "As long as they're able to supply labor time to the market that is close to that of males, then the incentives are going to work out that women acquire as much human capital as men." Which means that, in the absence of overt discrimination, women will earn as much as men, and this particular battle of the sexes will be history. **RF**

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